

# Special Cases of Trinomials with $a=1$

"Difference of Squares"

Ex 4:

$$x^2 - 25$$

$\Rightarrow$

$$\begin{array}{ccc} x^2 & +bx & +c \\ x^2 & +0x & -25 \\ & \uparrow & \uparrow \\ & + & * \end{array}$$

$$\boxed{(x-5)(x+5)}$$

Need

|         |                |
|---------|----------------|
| $+ -25$ | $+ 0$          |
| $-5, 5$ | $0 \checkmark$ |

Ex 5:  $x^2 - 49 = (x-7)(x+7)$

Ex 6:  $x^2 - 121 = (x-11)(x+11)$

Ex 7: Simplify  $\frac{x^2 + 5x + 6}{x^2 + 2x - 3} \rightarrow$  Factor the numerator and denominator

$$\frac{\begin{array}{ccc} & + & \\ & \downarrow & \downarrow \\ x^2 & +5x & +6 \\ & \uparrow & \uparrow \\ & + & * \end{array}}{\begin{array}{ccc} & \uparrow & \uparrow \\ x^2 & +2x & -3 \\ & + & * \end{array}} = \frac{(x+2)\cancel{(x+3)}}{\cancel{(x+3)}(x-1)} = \boxed{\frac{x+2}{x-1}}$$